

Feb. 14, 1933.

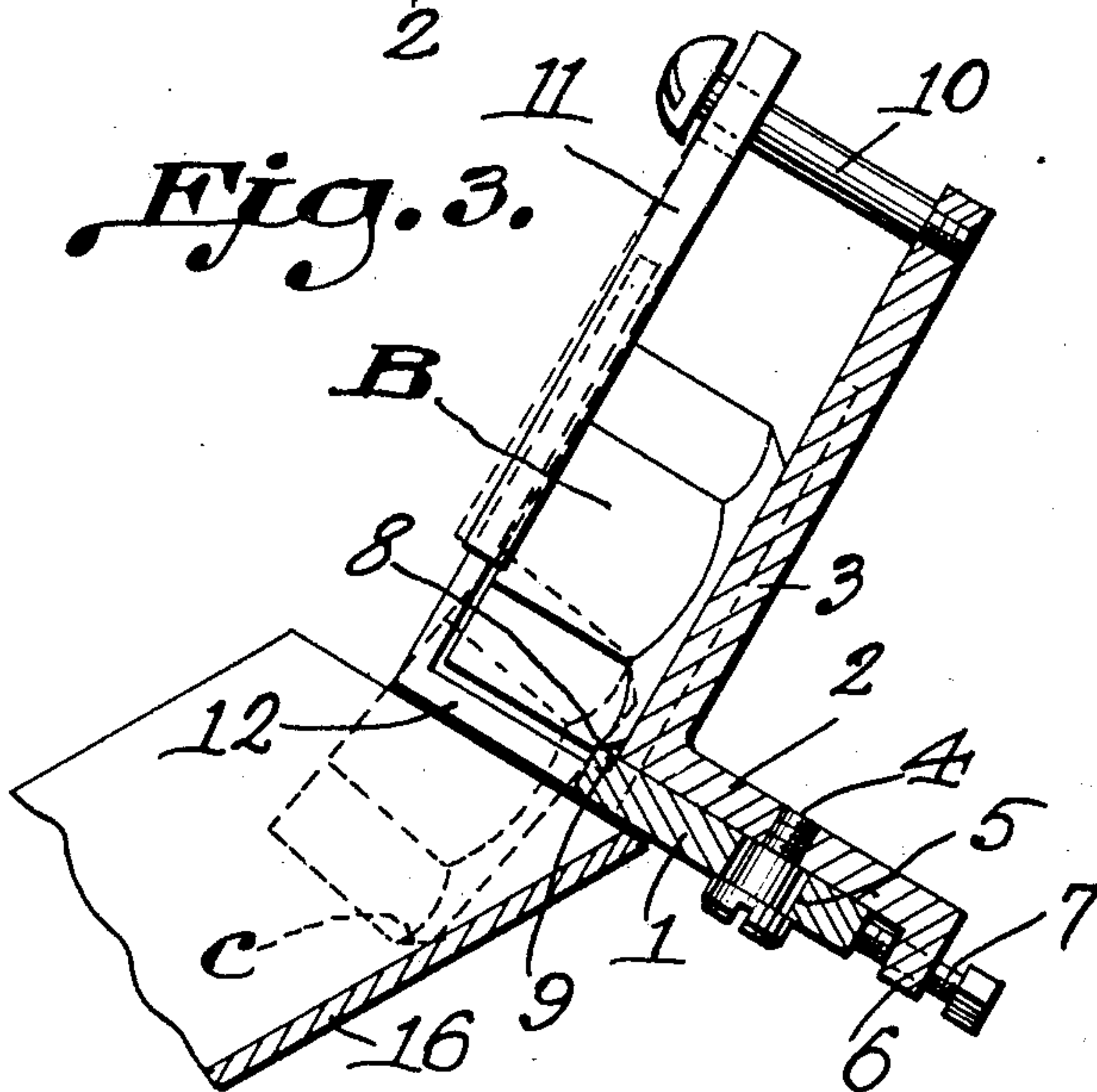
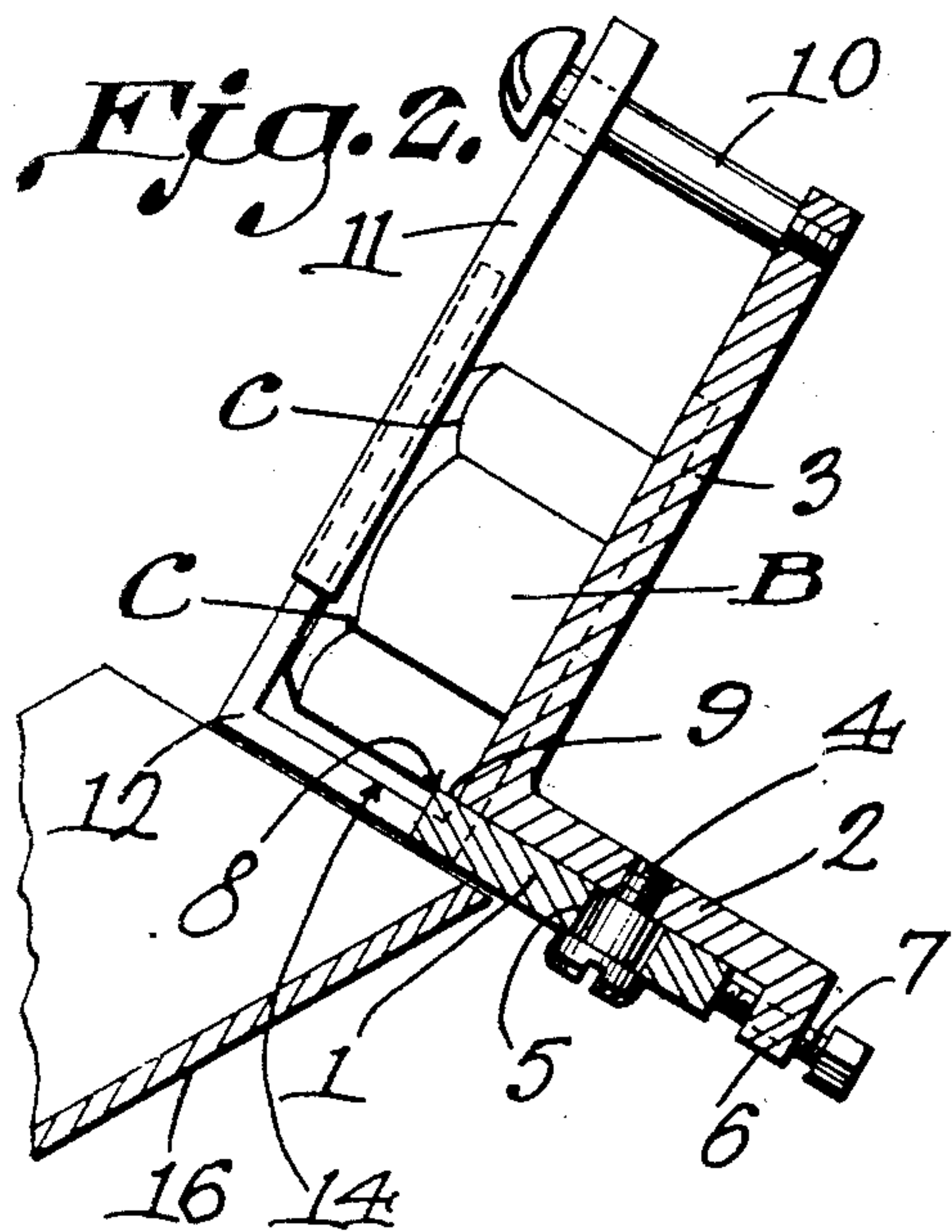
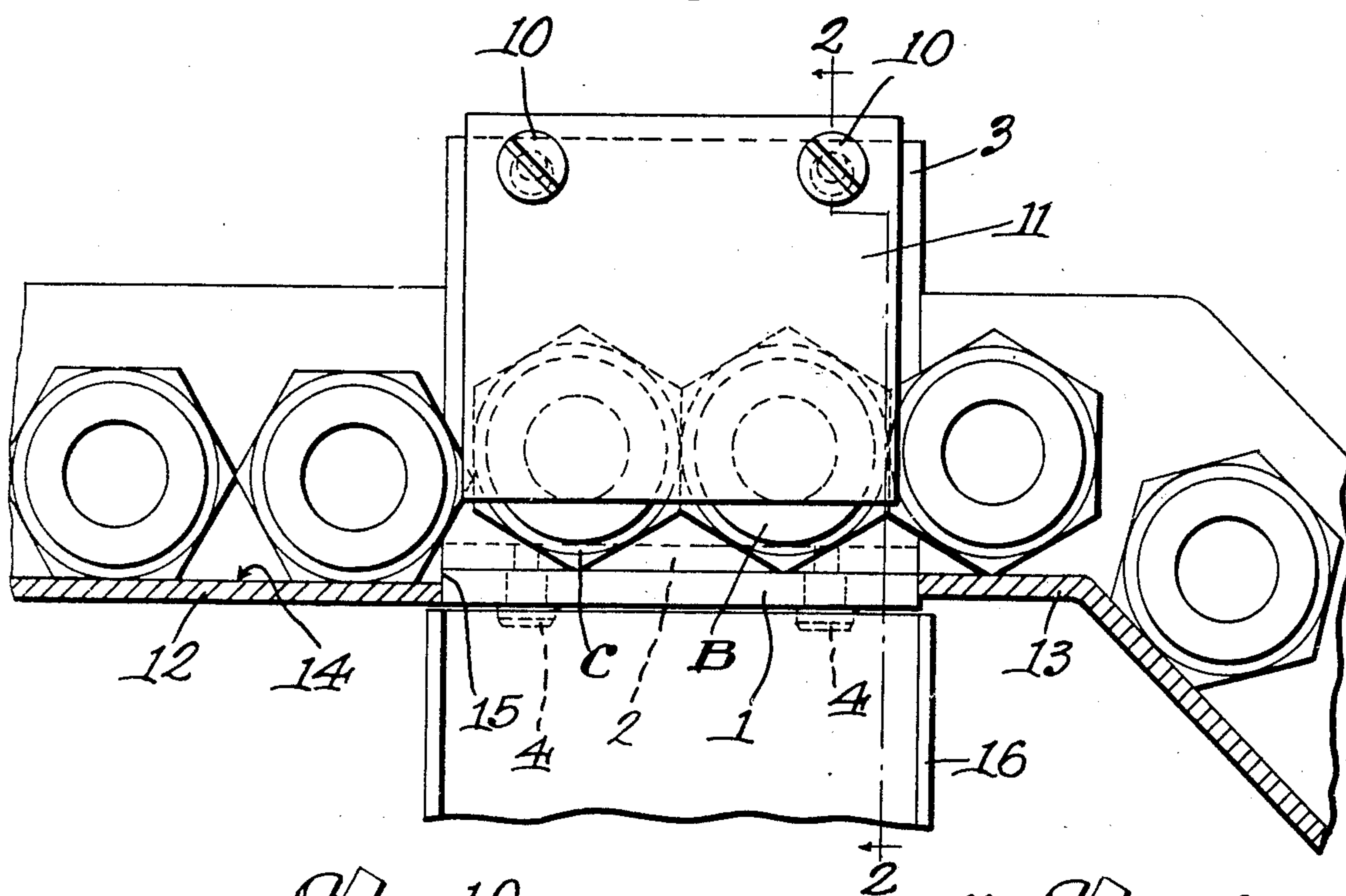
J. H. FRIEDMAN

1,897,116

NUT BLANK SORTER FOR TAPPING MACHINES AND THE LIKE

Filed Feb. 16, 1932

Fig. 1.



John H. Friedman Inventor

By *Calhoun & Co.*
Attorneys.

UNITED STATES PATENT OFFICE

JOHN H. FRIEDMAN, OF TIFFIN, OHIO, ASSIGNOR TO THE NATIONAL MACHINERY
COMPANY, OF TIFFIN, OHIO

NUT BLANK SORTER FOR TAPPING MACHINES AND THE LIKE

Application filed February 16, 1932. Serial No. 593,337.

This invention relates to sorting means for use in connection with tapping machines, burring machines, nut machines, nutting machines, castellating machines and the like.

Heretofore nut blanks to be threaded have been elevated to the upper end of a chute and there fed by gravity so as to be positioned successively in the path of a plunger or the like used for directing the blanks into engagement with a holder and a tap. It is desirable that the top face of the blank be first presented to the tap and an object of the invention is to provide a simple and efficient means whereby nuts which are not placed for proper presentation to the tap will be automatically discarded without requiring the use of any movable parts especially provided for that purpose.

It is the general practice to keep a supply of blanks in a hopper and to direct blanks therefrom into a chute where they are held in line while traveling toward the tap. Obviously some of the blanks will be placed in the chute with their convex faces in line with the flat faces of the other blanks and unless some means is provided for arranging all of the blanks so as to face the same way many of them will not be presented properly to the tap.

It has been found that the simplest and most efficient way in which to handle the blanks is to discharge from the feed chute all of those which are not properly arranged so that only those entering the chute correctly positioned will pass on to the tap. One of the objects of the invention is to provide the feed chute with a discarding means which will permit the passage thereover only of those blanks facing in the required direction.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawing the pre-

ferred form of the invention has been shown.

In said drawing:

Figure 1 is a vertical section through a portion of a feed chute for a nut tapping machine.

Figure 2 is a section on line 2—2, Figure 1, the retaining plate being in elevation.

Figure 3 is a similar view illustrating the action when discarding a blank.

Referring to the figures by characters of reference, 1 designates a transversely inclined plate above which is supported the base 2 of an upstanding backing plate 3. The plate 1 is connected to the base 2 by screws 4 or the like which are extended through slots 5, and at the back edge of the base there is provided a depending flange 6 carrying an adjusting screw 7.

The backing plate 3 is perpendicular to the inclined plate 1 and parallel with the upper edge 8 thereof. Said edge is also set forwardly from said plate 3 a desired distance to provide a narrow inclined ledge 9 extending throughout the length of the plate.

Posts 10 are extended from the upper portion of the front face of the backing plate and overhang the ledge 9. A retaining plate 11 is suspended loosely from these posts. The feed chute includes a receiving portion 12 which serves to conduct blanks B to one end of ledge 9 and a delivering portion 13 for receiving blanks as they leave the other end of the ledge. The bottom 14 of the portion 12 has its upper surface below the level of the top of ledge 9 so that a shoulder 15 is formed by one end of the ledge. As the backing plate 3 is flush with the back of the portion 12 of the chute it will be apparent that the gap between the two portions 12 and 13 will be bridged solely by the narrow ledge 9.

The plate 3 is inclined at such an angle that the center of gravity of a blank leaning thereagainst will extend back of the edge 8. Thus a nut resting with its flat face against the plate will be properly supported for sliding movement. The plate 1 is adjustable to form a ledge 9 the depth of which is slightly less than the height of the curved portion *c* of the convex face of the nut at any corner of the blank B. This depth can

be adjusted readily by means of screws 7 and 4 to adapt the device to the size and shape of the nuts being acted upon.

The blanks are directed into the receiving portion 12 of the chute by any suitable means and are caused to slide therealong, toward the ledge 9. Each will naturally present one of its flat sides to the bottom of the chute so as to slide therealong. As each blank reaches the shoulder 15 it will be tripped thereby and caused to make a partial rotation as it rolls onto the ledge. If the flat face of the nut is so located as to slidably engage the inclined backing plate, the blank will be supported properly by the narrow ledge 9 and slide therealong to the delivery portion 13 of the chute. However if the convex face is nearest the backing plate a rounded corner portion c will move downwardly onto the ledge and as the ledge is not sufficiently deep to support a blank when thus presented thereto, the said blank will slip off by gravity and fall into a trough 16 or the like which will return it to the mass of blanks awaiting action of the feeding mechanism.

As the blanks pass along the ledge they will move back of the retaining plate 11 which tends to press them lightly against the backing plate without interfering with the discarding action of the device.

As a very minute adjustment of the ledge can be made the device can be set to discard nuts of all sizes and shapes provided one face of each nut is rounded at the corners.

What is claimed is:

1. A sorter for crowned nut blanks including a chute for supporting a series of alining blanks on their lower sides for sliding movement, an inclined backing plate at the end of said chute, a ledge cooperating with the backing plate to form an angle for supporting blanks only when their plain faces are positioned adjacent to or against the backing plate, and nut tripping means at one end of the ledge.

2. A sorter for crowned nut blanks including a chute for slidably supporting a series of nuts on their lower sides, an inclined backing plate, a relatively narrow ledge projecting from the plate for supporting blanks only when seated snugly in the angle formed by the ledge and plate and with their plain faces positioned adjacent to or against the backing plate, said plate being inclined at such an angle as to bring the center of gravity of a supported blank close to but in front of the plate, and a loosely mounted retaining device suspended above the ledge.

3. A sorter for crowned nut blanks including a chute having a blank receiving portion and a blank delivering portion, said portions being spaced apart, a relatively narrow ledge bridging the space between said portions, means upstanding from the ledge for holding blanks in inclined positions on

the ledge only when their plain faces are adjacent to or against said means, and means for adjusting the ledge to different widths.

4. A sorter for crowned nut blanks including a chute having a blank receiving portion and a blank delivering portion, said portions being spaced apart, a relatively narrow ledge bridging the space between said portions, means upstanding from the ledge for holding blanks in inclined positions on the ledge only when their plain faces are against or adjacent to said means, and means for tripping the blanks as they move onto the ledge.

5. A sorter for crowned nut blanks including a chute having a blank receiving portion and a blank delivering portion, said portions being spaced apart, a relatively narrow ledge bridging the space between said portions, means upstanding from the ledge for holding blanks in inclined positions on the ledge only when their plain faces are against or adjacent to said means, said ledge being disposed at one end above the bottom of the chute to provide a blank tripping shoulder.

6. A sorter for crowned nut blanks including a chute having a blank receiving portion and a blank delivering portion, said portions being spaced apart, a relatively narrow ledge bridging the space between said portions, means upstanding from the ledge for holding blanks in inclined positions on the ledge only when their plain faces are against or adjacent to said means, said ledge being disposed at one end above the bottom of the chute to provide a blank tripping shoulder, and a retaining element overhanging the ledge for loosely bearing upon supported blanks.

7. A sorter for crowned nut blanks including a chute having a blank receiving portion and a blank delivering portion, said portions being spaced apart, a relatively narrow ledge bridging the space between said portions, means upstanding from the ledge for holding blanks in inclined positions on the ledge only when their plain faces are against or adjacent to said means, and a blank return spout beneath the ledge.

8. A sorter for nut blanks including a chute having a blank receiving portion and a blank delivering portion, said portions being spaced apart, a relatively narrow ledge bridging the space between said portions, means upstanding from the ledge for holding blanks in inclined positions on the ledge only when their plain faces are against or adjacent to said means, means for tripping the blanks as they move onto the ledge, a blank returning chute beneath the ledge, and a means above the ledge for retaining blanks supported by the ledge.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

JOHN H. FRIEDMAN.