

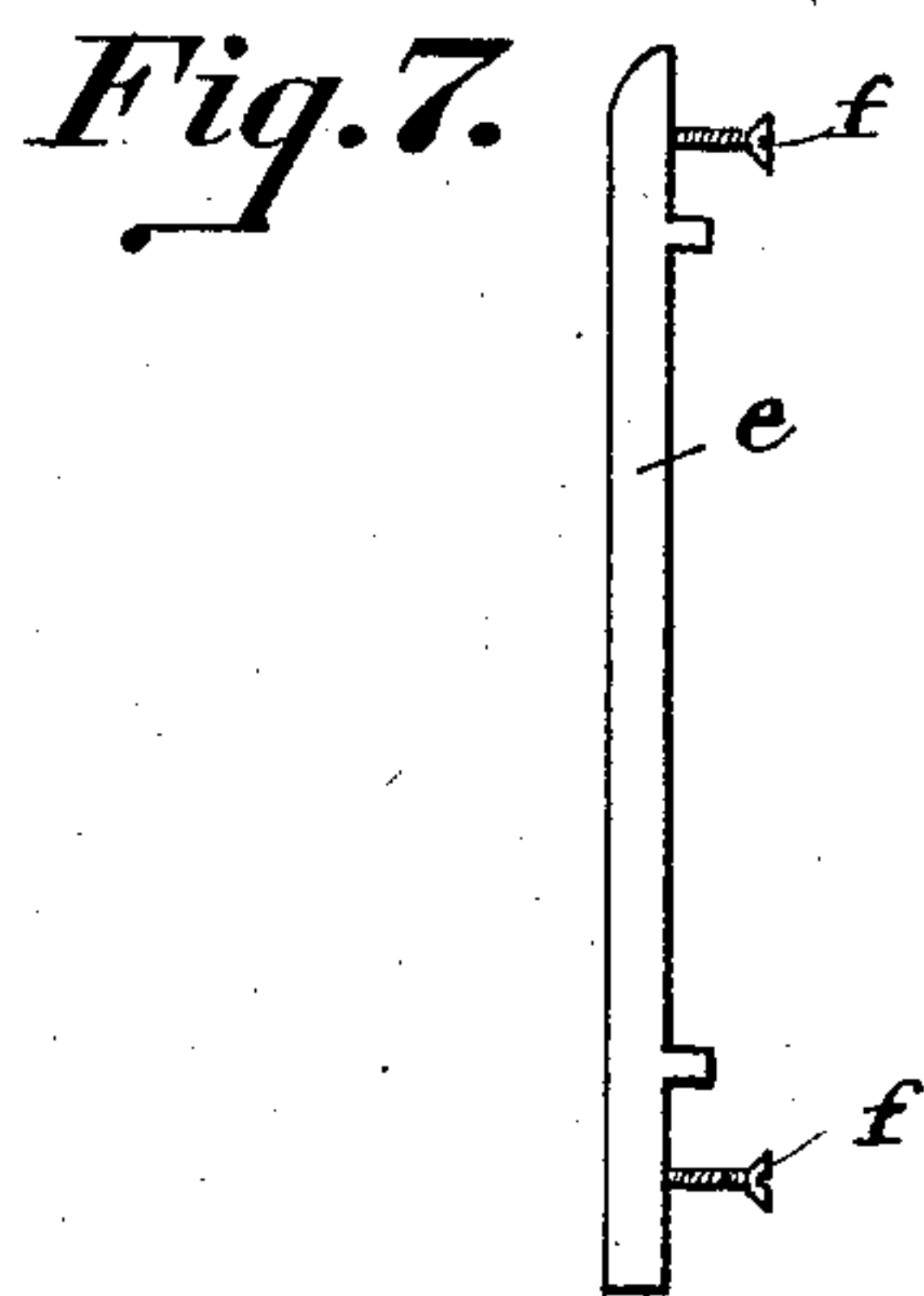
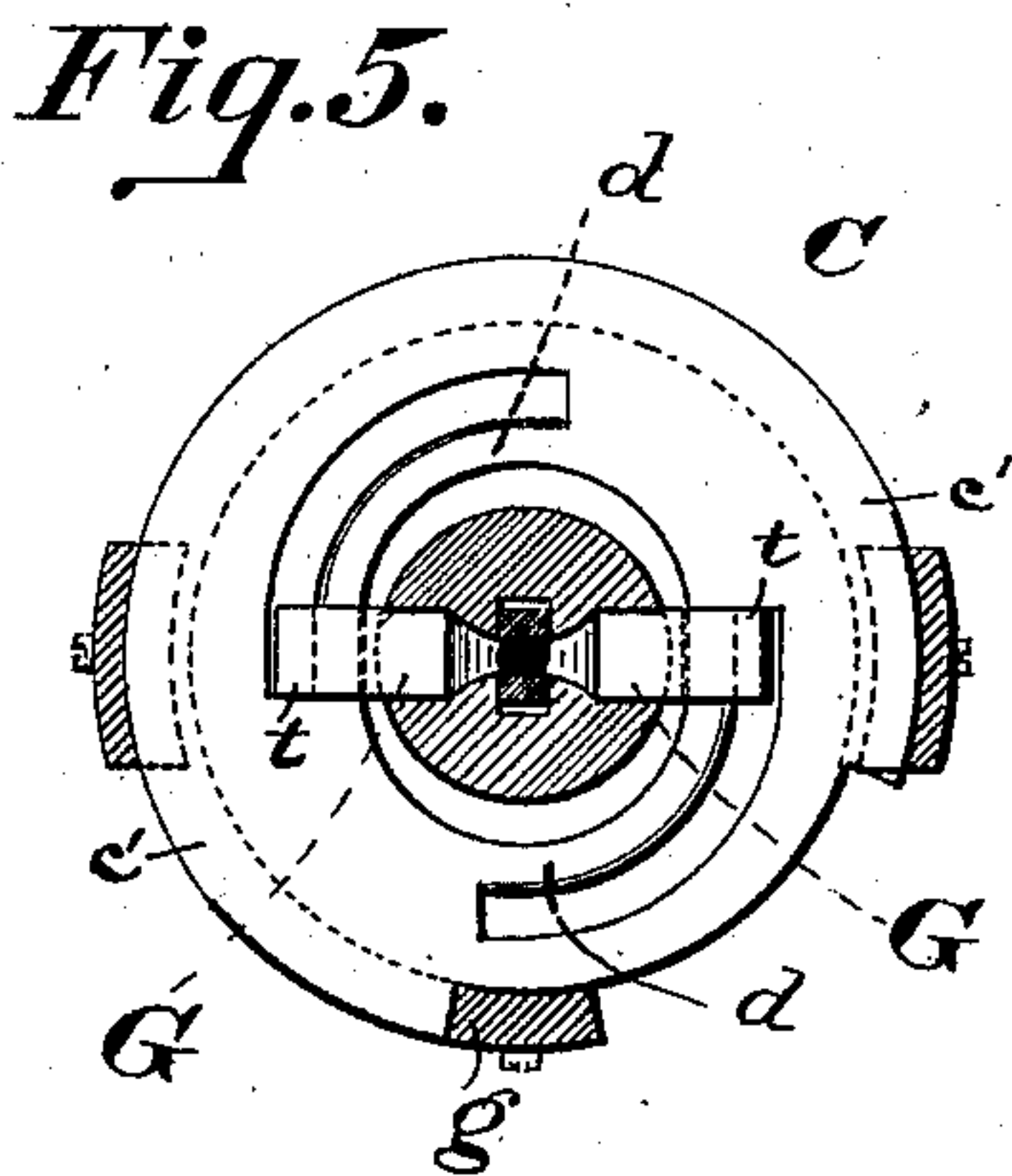
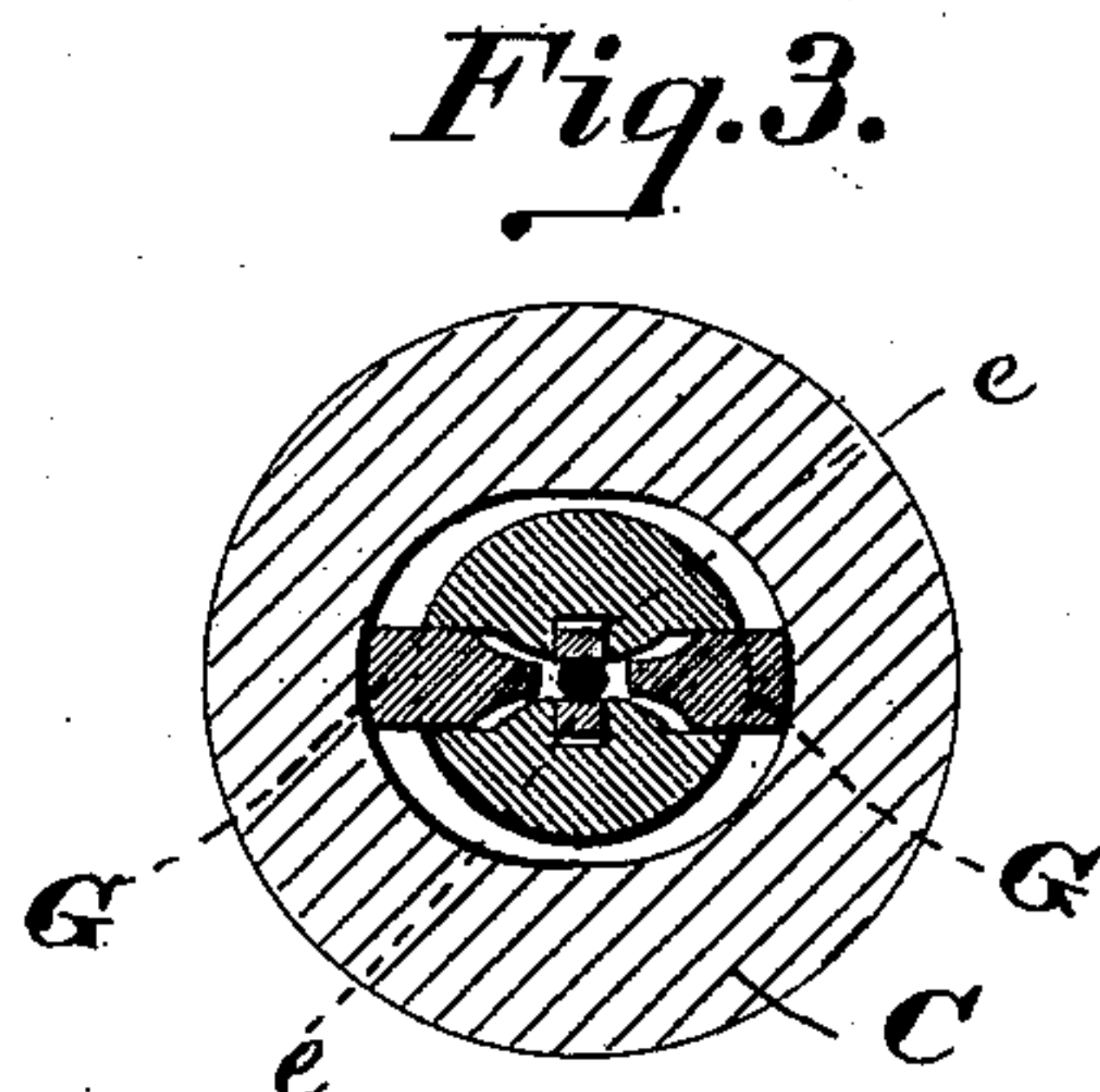
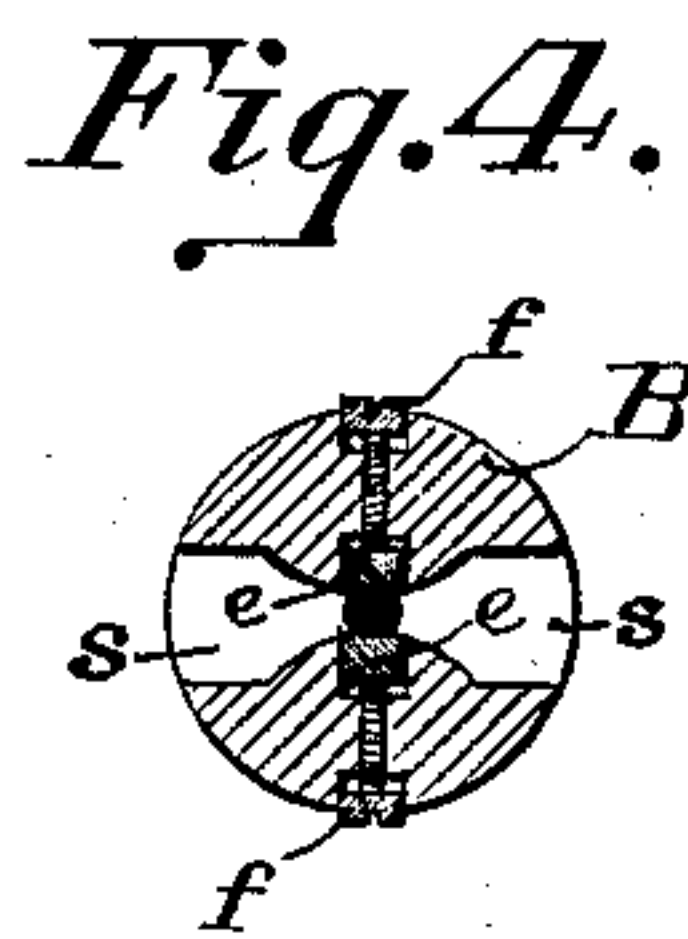
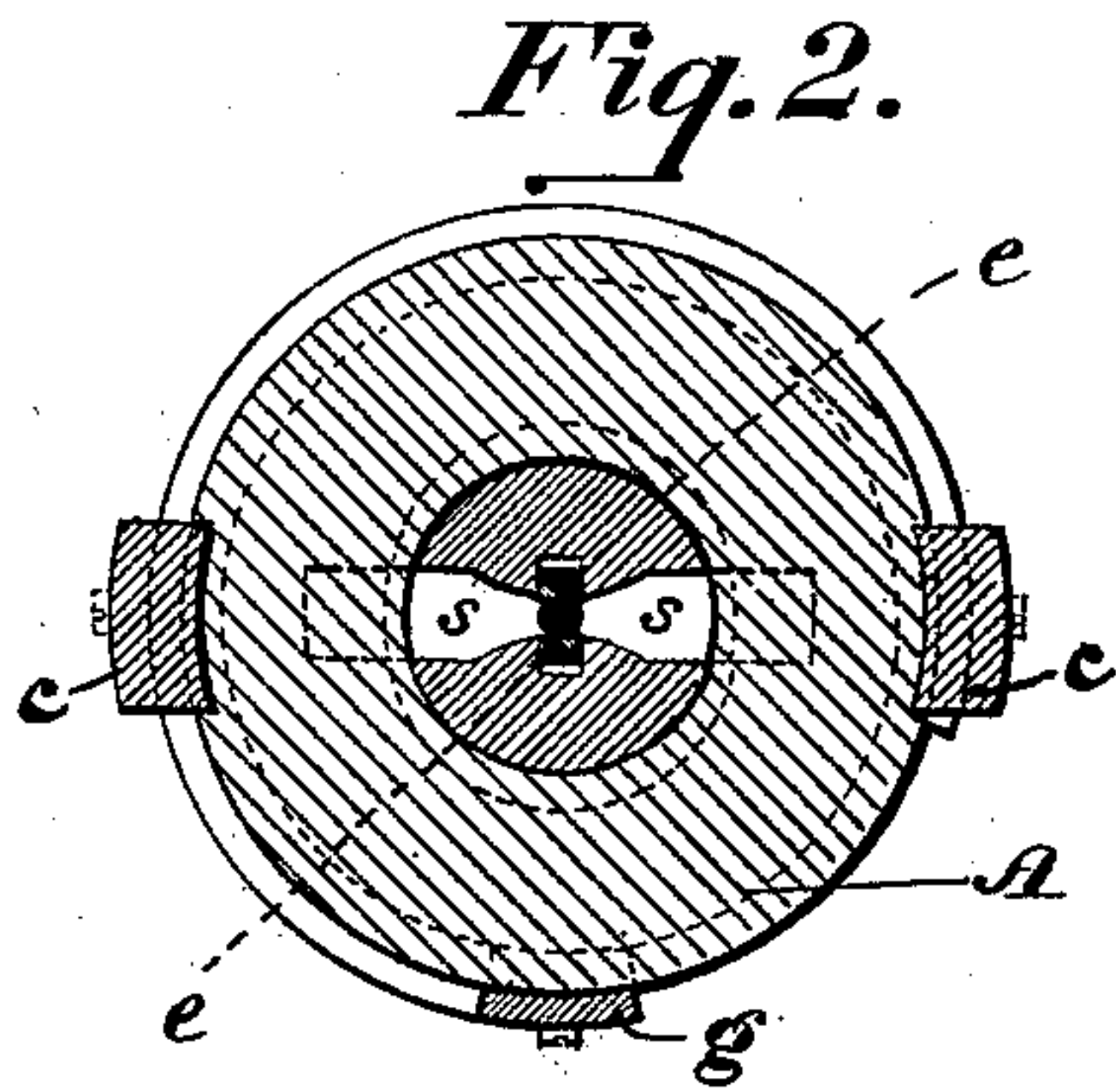
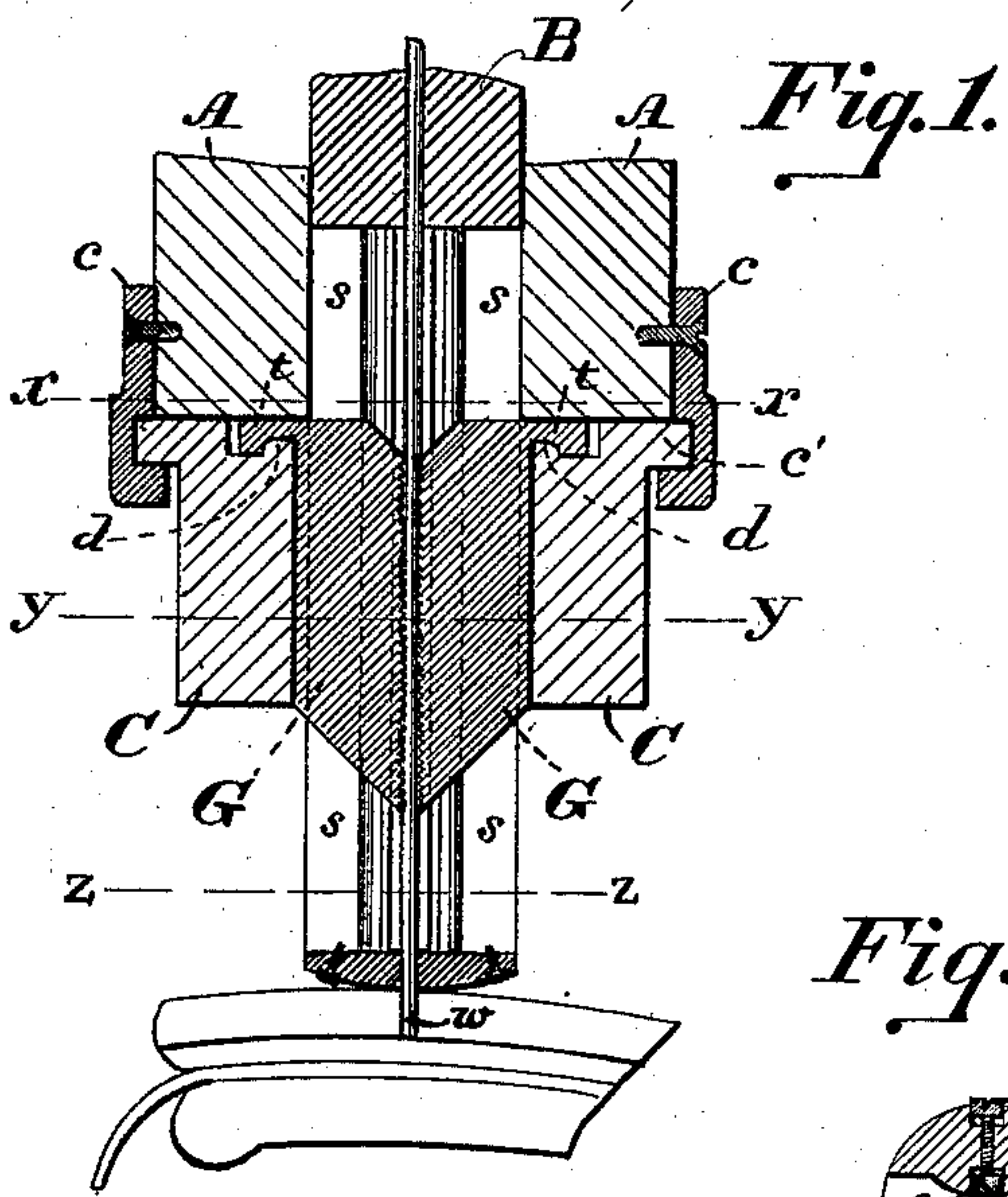
(No Model.)

O. E. SEYMOUR.

GRIPPING MECHANISM FOR WIRE NAILING MACHINES.

No. 364,777.

Patented June 14, 1887.



WITNESSES:

F. D. Hosea
A. C. May

INVENTOR:

Oliver E. Seymour

BY

L. M. and R. M. Hosea

ATTORNEYS:

UNITED STATES PATENT OFFICE.

OLIVER E. SEYMOUR, OF CINCINNATI, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE WIRE GRIP FASTENING COMPANY, OF CHICAGO, ILLINOIS.

• GRIPPING MECHANISM FOR WIRE-NAILING MACHINES.

SPECIFICATION forming part of Letters Patent No. 364,777, dated June 14, 1887.

Application filed September 10, 1884. Serial No. 142,679. (No model.)

To all whom it may concern.

Be it known that I, OLIVER E. SEYMOUR, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Gripping Mechanism for Wire-Nailing Machines, of which the following is a specification.

My invention relates to wire-nailing machines for boots and shoes, its object being to improve the same in respect to the construction and arrangement of the gripping devices by which the wire is forced downward into the material to be fastened.

To this end my invention consists in combining with the vertically-reciprocating head and wire-carrying spindle a pair of grippers with actuating mechanism for positively advancing and receding the same at proper intervals, and regulating devices for controlling their action, and in certain other details of construction, all as hereinafter more fully set forth.

In the drawings illustrating my invention, attached to and forming a part of this specification, Figure 1 is a vertical axial section of so much of the vertically-reciprocating head of a wire-nailing machine as embodies my improvements; Fig. 2, a plan section taken in the plane xx of Fig. 1; Fig. 3, a plan section taken in the plane yy of Fig. 1; Fig. 4, a plan section taken in the plane zz of Fig. 1; Fig. 5, a plan view of the eccentric collar; Fig. 6, a detached view of the adjustable stop, and Fig. 7 a detached view of one of the lining-guides.

The machine to which my invention is applied consists, essentially, of a supporting-frame on which are mounted, with suitable driving mechanism, a vertically-reciprocating head embracing and moving upon a hollow "spindle" or wire-carrier provided with grippers to engage the fastening-wire, and a "horn" or support for the stock. These parts are common in machines of this class, and I have therefore not thought it necessary to exhibit them in the drawings or describe them herein, except so far as to show clearly my improvement.

Referring now to the drawings, A designates

the annular or "working" head, and B the spindle or wire carrier, the latter being of cylindrical form fitted loosely within the former and carrying the wire within its hollow axis. I construct the spindle with vertical slots s , opening from opposite sides into its hollow axis for the reception and play of the "grippers" G, which are arranged to move radially toward and from the center of the spindle, guided between the vertical side walls of the slots s , and also to move vertically in relation to the spindle within the slots, as hereinafter set forth. To the lower end of the head A a collar or annular sleeve, C, is secured by side cleats, c , engaging a projecting flange, c' , of the collar. The inner opening of the collar is curved eccentrically on each side in such manner that the rotation of the spindle carrying the grippers causes the eccentric inner surface of the collar to bear against and advance the grippers within the spindle uniformly toward each other. Their receding movement is accomplished by extending the upper portion of the gripper rearward and providing such extension with a tongue, t , projecting downward beyond a marginal curb, d , surrounding the eccentric aperture at the upper surface of the collar, said curb acting as a cam engaging the tongue t and withdrawing the grippers G from the center of the spindle.

In the operation of the machine the action of the grippers is effected by the partial rotation of the spindle B synchronously with the vertical movement of the head A, carrying the grippers and their surrounding collar, the spindle remaining vertically stationary. Thus when the working-head is at its highest limit of movement a partial rotation of the spindle closes the grippers inward upon the wire w , in which position they remain during the downward movement of the working-head, and at the lower limit of its movement are released and drawn outward by an opposite rotation of the spindle, so remaining until the upper limit is again reached. The mechanism for producing these movements is common in such machines and forms no part of my present invention.

The machine to which my improvements are in practice applied is designed to operate a wire having two opposite plane surfaces, the intervening surfaces being curved and corrugated or threaded perpendicularly to the axis. The grippers act upon the corrugated surfaces, and to prevent undue wear I surface the opposite sides of the axial opening in the spindle B with steel or other hard metal bars *e e*, secured in suitable recesses by dowel-pins, and adjusting-screws *f* may be provided at convenient points of the spindle to take up any lost motion and regulate the friction upon the wire.

As a means of regulating the clamping force of the grippers, I provide an adjustable stop or abutment piece, *g*, projecting below the working-head, to which it is secured into a recess formed in the flange *c'* of the collar C. The stop is arranged with a horizontal slot, through which its holding screw is inserted, allowing a lateral adjustment with reference to the limits of the flange-recess. By means of this stop when in the rotation of the spindle the grippers have closed sufficiently, as determined by the adjustment of the stop, the latter strikes the flange at the end of the recess, and in the further rotation of the spindle the collar C is carried with it without further tightening the grippers against the wire.

Although I have described herein a collar having double eccentric inner surfaces as used with two grippers of uniform dimensions, a collar having a single eccentric curve might be employed, the grippers in such case being properly proportioned thereto. It will also be obvious that three grippers could be used, the spindle being provided with suitable slots to receive them.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. In a nailing-machine for boot and shoe work, the working-head, the radially-slotted spindle arranged within it, and the grippers arranged in the slot of the said spindle, combined with means, substantially as described, whereby the said grippers are moved positively toward and from the wire, substantially as described.

2. In a wire-nailing machine for boots and shoes, in combination with the working-head, the slotted spindle and grippers, an eccentric collar, and adjustable stop, arranged and operating as and for the purpose specified.

3. In a wire-nailing machine for boots and shoes employing a wire having opposite plane faces, the hollow spindle or wire-carrier B, in combination with the adjustable surfacing-bars *e*, substantially as set forth.

4. In a wire fastening machine for boots and shoes, the working-head provided with an adjustable stop and embracing the slotted spindle, the annular eccentric collar movably hung from the working-head, and the grippers having flanges suitable for engagement upon a marginal curb parallel to the inner surface of the collar, combined, arranged, and operating substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

OLIVER E. SEYMOUR.

Witnesses:

POWER CROSLY,

HUGH MCKENZIE.