

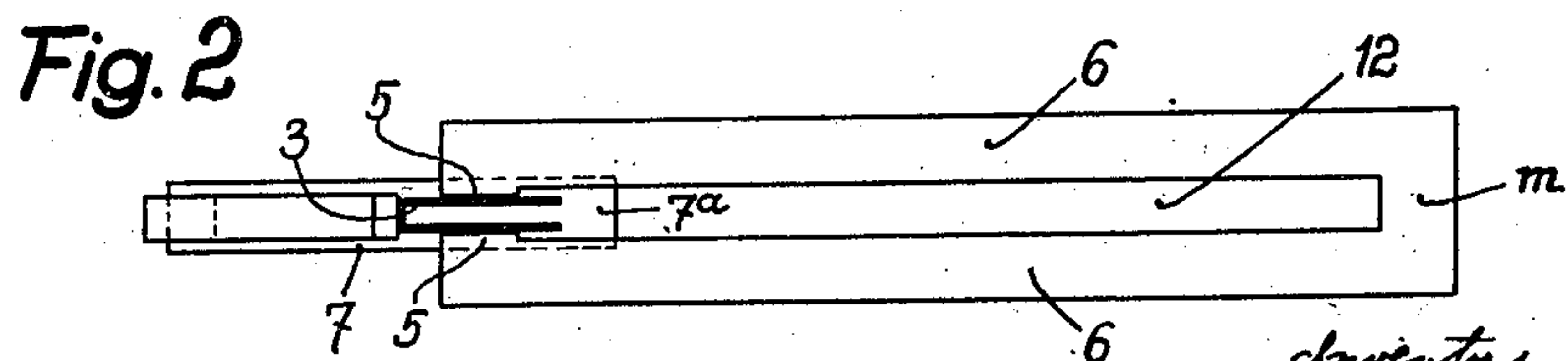
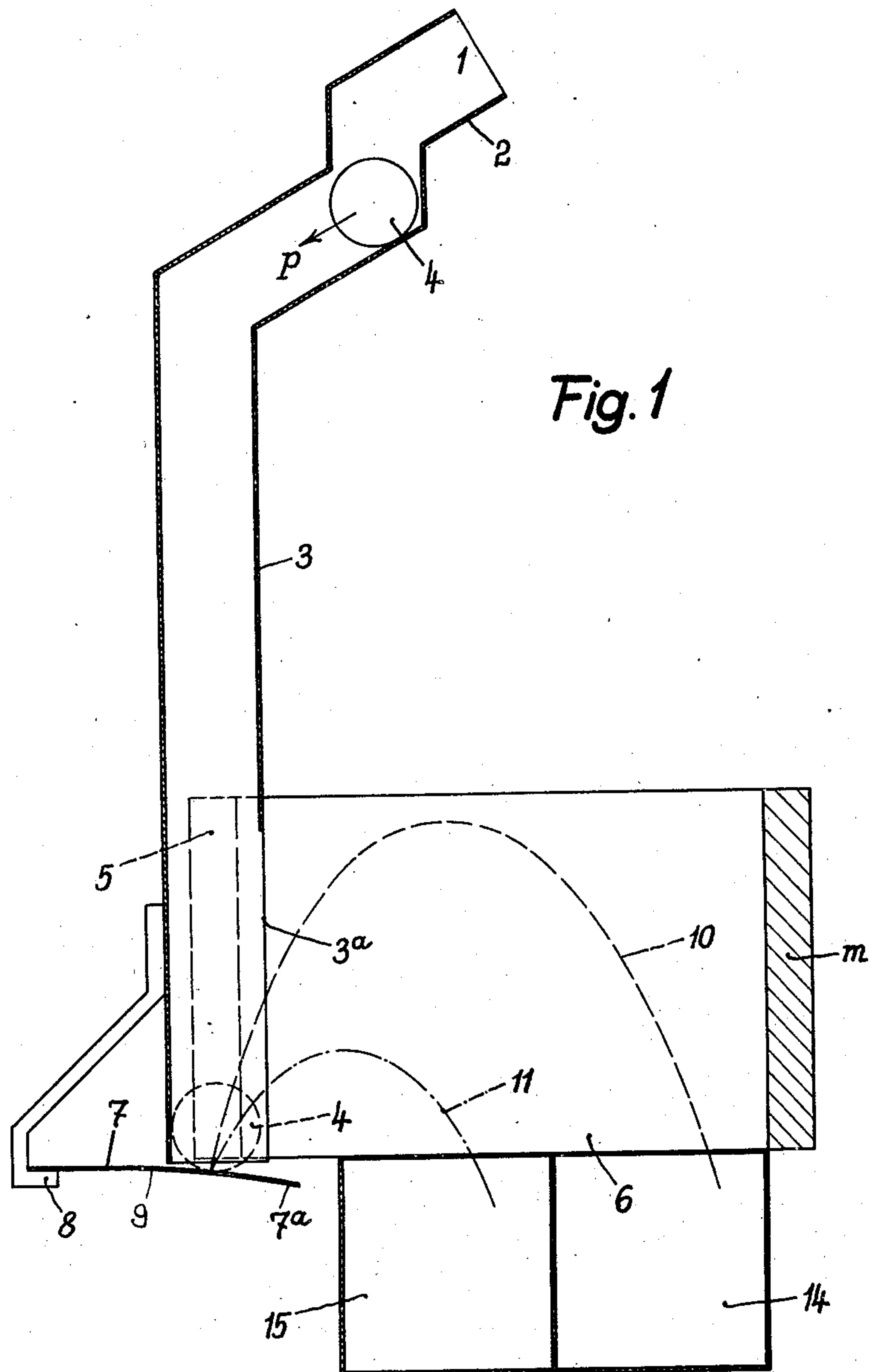
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METHOD OF AND MEANS FOR SEPARATION AND SORTING

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METHOD OF AND MEANS FOR SEPARATION
AND SORTINGTheodor Braun and Wilhelm Vogt, Vienna,
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2 Claims. (Cl. 194—100)

We have filed an application in Austria on the 2nd May 1933.

This invention relates to a new method of an appropriate means for the separating and sorting of metal discs such as coins. The new method according to the invention consists essentially in passing metal discs one by one down a sloping or vertical chute, subjecting them, preferably towards the end of their movement down the chute, to eddy current braking action exerted by a magnetic field, and then causing them to strike upon a spring element so that they bounce back into and then out of the range of the said magnetic field, their path of movement or trajectory on the rebound being different according to their composition and the consequent manner in which they are influenced by the magnetic field. This difference of trajectory is then utilized in accordance with the invention for effecting separation or sorting.

Apparatus suitable for carrying out this method are shown by way of example in the accompanying drawing, in which:—

Fig. 1 shows the essential parts of the apparatus in sectional elevation.

Fig. 2 shows the apparatus in plan view.

Referring to the drawing, a metal disc such as for example a coin passes at 1 into a chute 2 which is off-set and terminates in a sloping or vertical portion 3. At the off-set portion the coin 4 comes almost to a standstill before entering the vertical stretch 3 through which each coin will thus drop with substantially the same initial velocity determined solely by its inherent weight. In the latter portion of this chute the coins traverse a magnetic field generated by the poles 5, 5 pertaining to the limbs 6, 6 of a permanent or electro-magnet *m* which embraces the chute 3 with its poles from both sides. The chute is open to the bottom, and at the bottom thereof, in the path of the drop of the coin 4, there is provided a spring member, for example an adjustable and movable leaf spring 7 which is secured at 8 and slightly bent down at 9. The coin 4, on dropping on to the end 7^a of this leaf spring, bounces back with approximately equal velocity into the range of the magnetic field, and there subjected, according to its composition, for the second time to eddy current braking action. According to the strength of this braking action on the second traversing of the magnetic field, the trajectory of the coin on the rebound, as it passes out through the aperture 3^a in the chute, will vary as indicated by the paths for two different kinds of discs shown at 10 and 11, in broken and chain-dotted lines, respectively, in Fig. 1. Appropriate receivers 14, 15 are provided to catch the coins or other metal discs thus sorted or separated out.

Since the path of the metal disc on the rebound is for the greater part within the space 12 between the limbs of the magnet *m* the leakage fields present between these limbs 6, 6 are also utilized for the production of eddy current braking action, and thus for the sorting or separating of the coins or other discs. In this manner the selectivity of the apparatus is very considerably increased.

Without departing from the scope of the invention, the metal discs can be arranged to be thrown out of the testing apparatus in a direction away from the magnet, if the auxiliary action of the leakage fields of the magnet be dispensed with.

The vertical arrangement of the chute has the advantage that no friction is set up between the discs and the sides of the chute.

The chute can be so dimensioned that discs such as coins of different diameters, and if desired of different thicknesses, can pass there-through.

We claim:

1. The method of sorting metallic discs such as coins, according to their metallic composition, which consists in subjecting the said discs to eddy current braking action, as they travel down a chute, by causing them to pass through a magnetic field produced between two magnet poles disposed on two opposite sides of the said chute, and to impact while still within the range of the said field against a non-massive resilient element so that they rebound back into the selfsame magnetic field, causing the said discs to pass on their rebound trajectory not only through the said magnetic field, but also through the region of the leakage field thereof, and finally catching the said discs in different receptacles according to their different metallic composition, by virtue of the braking action exerted by the said fields.

2. Apparatus for sorting metal discs according to their metallic composition, comprising in combination a chute open-ended at the bottom, a rebound spring mounted to form a closure to the open lower end of the said chute, a magnet having its poles disposed at opposite sides of the walls of the said chute and extending right down to the said spring and having limbs of protracted length extending laterally of the said chute and adapted to produce a leakage field, the said spring being adapted to cause the impacting metal discs to rebound between the said poles and between the said limbs, and a plurality of receptacles for the collection of the said metal discs disposed beneath the said magnet.

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