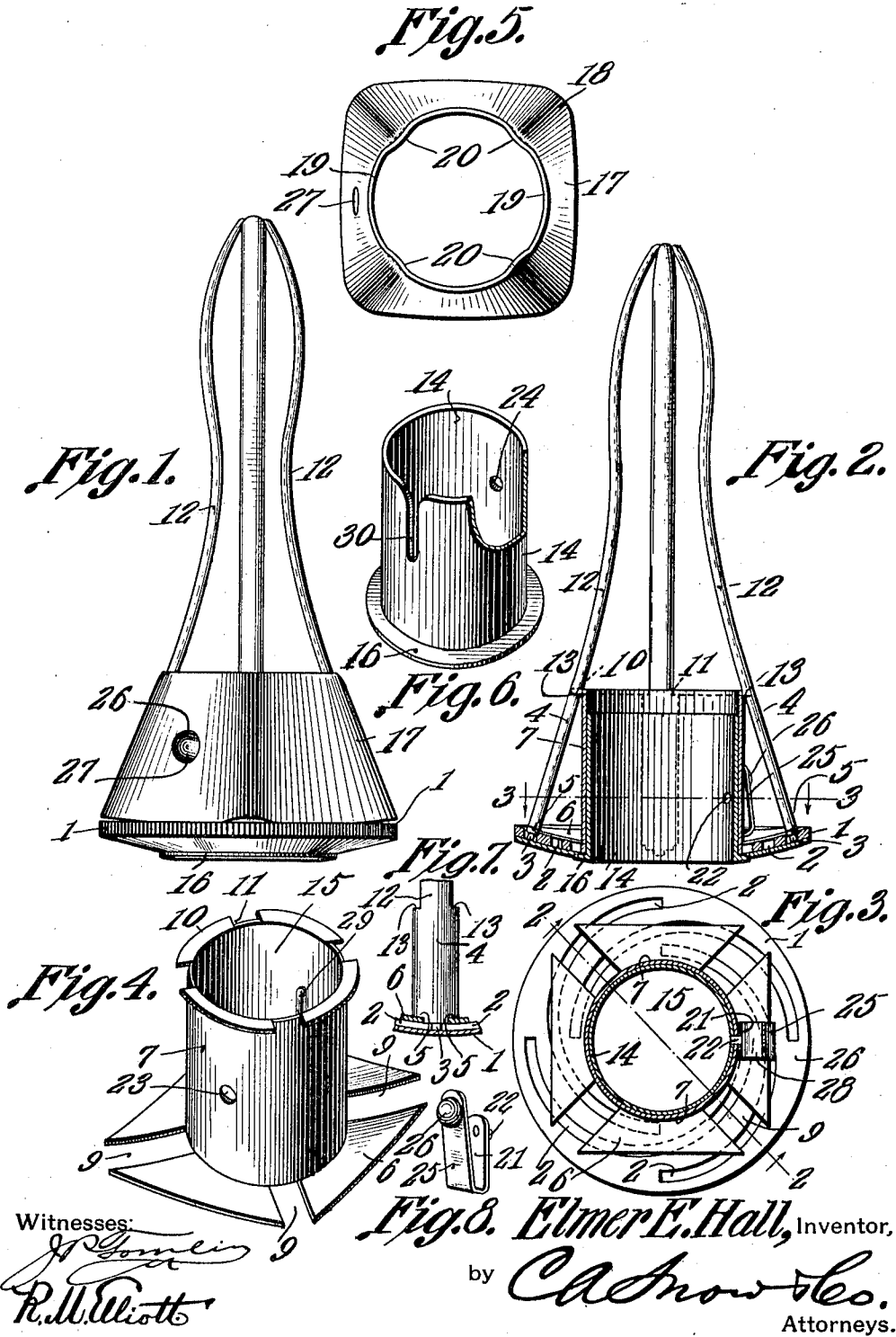


1,020,281.

Patented Mar. 12, 1912.



# UNITED STATES PATENT OFFICE.

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## SPECULUM.

1,020,281.

Specification of Letters Patent.

Patented Mar. 12, 1912.

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*To all whom it may concern:*

Be it known that I, ELMER E. HALL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Speculum, of which the following is a specification.

This invention relates to speculums.

The object of the invention is to provide a speculum having a novel arrangement of interchangeable arms or fingers to adapt it for use in making examinations of either the posterior or anterior canals, the fingers being so disposed and operated that the distension of the canal walls to be explored may be easily and effectively secured with the minimum of pain to the patient, and in which, further, the distended parts will be so held as to insure thorough inspection thereof.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a speculum, as will be hereinafter fully described and claimed.

In the accompanying drawing forming a part of this specification, and in which like characters of reference indicate corresponding parts: Figure 1 is a view in side elevation of a speculum constructed in accordance with the present invention, and showing the same equipped with fingers for performing posterior examinations; Fig. 2 is a vertical sectional view taken on the line 2—2 Fig. 3, fingers for performing anterior examinations being substituted for those shown in Fig. 1; Fig. 3 is a horizontal sectional view taken on the line 3—3 Fig. 2; Fig. 4 is a perspective detail view of the finger carrier; Fig. 5 is a top plan view of the finger retaining sleeve; Fig. 6 is a perspective detail view, partly in section, of the sight tube; Fig. 7 is a fragmentary detail view, showing the cooperative relation between a finger and the finger adjuster; and Fig. 8 is a perspective detail view of a latch for holding the sight tube, finger adjuster, finger carrier, and retaining sleeve in locked relation.

Referring to the drawings, 1 designates the finger adjuster which is constructed from an annulus of metal that is slightly dished and is provided with a plurality of cam grooves 2, four in this instance being shown as this corresponds to the number of fingers

employed. These grooves are engaged by pintles 3 formed on the lower or inner ends of the fingers 4, the latter adjacent to the pintles, being provided with shoulders 5 that are designed to rest upon the base plate 6 of the finger carrier, and thus limit the insertion of the pintles into the grooves. The carrier comprises a cylindrical sleeve 7, to the lower end of which is secured the base plate, which is of quadrangular form and is provided with diagonal slots 9 through which the shoulders of the fingers project. The upper or outer end of the sleeve is provided with a rim 10 furnished with notches 11 that correspond in number to and are arranged in alinement with the slots 9, and are designed to be engaged by the shanks 12 of the fingers, the latter being reduced in width at the points where they engage the notches 11 to provide shoulders 13 that will operate to hold the fingers in operative engagement with the carrier.

The sight tube comprises a cylinder 14 that is of a size to fit snugly within the central orifice 15 of the finger adjuster, and is provided at one end with a rim or flange 16 to bear against the under side of the finger adjuster and thus hold the same in engagement with the under side of the base plate 6 of the finger carrier.

In order to retain the fingers, which may be of any appropriate shape and constructed of any suitable material, in proper engagement with the finger carrier and with the finger adjuster, and to prevent their accidental disconnection, a retaining sleeve 17 is employed, which when viewed in elevation is of truncated cone shape, and is provided with a substantially rectangular lower end 18 and a substantially circular upper end 19, the walls of the opening in the upper end of the sleeve through which the fingers project being provided with inward turned or indented portions 20 forming lugs that are designed to engage with the fingers, and thus hold them firmly in position in the notches of the flange 10.

The means for holding the sight tube, finger adjuster, finger carrier, and retaining sleeve assembled, comprises a two-armed latch, shown in detail in Fig. 8, one arm 21 of which is provided with a stud 22 that is designed to engage aligned orifices 23 and 24 formed respectively in the cylindrical portions of the finger carrier and of the sight

tube, and the other arm 25 of which is provided with a knob or button 26 that is designed to engage an opening 27 in one wall of the retaining sleeve, the knob being projected a sufficient distance beyond the outer wall of the sleeve to permit of its being readily depressed by the thumb of the operator when it is desired to dismantle the speculum for the purpose of cleansing, or of changing the fingers. This latch is held frictionally in position, and its bend 28 bears upon the upper side of one of the members of the base plate 6, as clearly shown in Fig. 2, and is thus held in proper position for operation.

Owing to the fact that the sight tube is comparatively large, when the fingers are moved outward to secure distension of the canal, free inspection of the latter will be secured and space will be provided for the insertion of an instrument, if such be desired.

As a means for transmitting the motion of the finger adjuster to the fingers, without permitting movement of either the finger carrier or the sight tube, the former is provided with an inward extending boss 29 that is designed to engage a notch 30 formed in the wall of the sight tube opposite the opening 24, and thus lock the parts together.

The speculum of the present invention, while exceedingly simple in construction will be found thoroughly efficient for the purpose designed, and may be manufactured and sold at a price that will place it within easy reach of a practitioner. Furthermore, owing to the manner in which the parts are constructed and assembled, danger of derangement in use is reduced to the mini-

mum and long and continuous service is secured.

I claim:

1. A speculum comprising a plurality of fingers, a finger adjuster having cam grooves with which the inner terminals of the fingers engage, a finger carrier provided with means to hold the fingers properly spaced apart, a sleeve inclosing the carrier and the shanks of the fingers, a sight tube telescoped within the carrier and provided with a rim to engage the outer surface of the finger adjuster to retain it in operative position relative to the finger carrier, and a latch engaging orifices formed respectively in the sight tube, finger carrier and sleeve to maintain the parts detachably assembled.

2. A speculum comprising a plurality of fingers, a finger adjuster having cam grooves with which the inner terminals of the fingers engage, a finger carrier provided with means to hold the fingers properly spaced apart and having an inward projecting boss, a sleeve inclosing the carrier, a sight tube telescoped within the finger carrier and having a notch engaging the boss thereof and provided at its outer end with a flange to engage the finger adjuster, and a two-membered latch having means to engage orifices in the sight tube, finger carrier and sleeve, to hold the parts detachably assembled.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ELMER E. HALL.

Witnesses:

JOHN B. CHAPMAN,  
L. F. KLEIN.